

Nasal septal abscess

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Nasal septal abscess is an uncommon condition about which little has been written recently. The abscess most commonly develops in a pre-existing septal hematoma.¹ There is usually a history of nasal trauma. Septal abscess may also occur after nasal septal surgery.¹⁻³ Much less commonly septal abscesses have been reported in association with dental abscesses,^{2,4} inflammatory conditions of the nose, such as furuncles, erysipelas and sinusitis,^{1,3} and more general infections such as typhus, scarlet fever, sepsis, smallpox, measles, glanders and anthrax.^{2,3} The pathogenic organism is usually *Staphylococcus*.¹ Much less frequently *Pneumococcus* and *Streptococcus* are found.¹ Most nasal septal abscesses occur in the anterior cartilaginous septum, although an abscess of the posterior nasal septum has been reported.⁵

Three illustrative case reports follow.

Case reports

Case 1

A 7-year-old boy initially received medical attention 1 day after noticeable swelling of the nose developed. There was no history of nasal trauma, and no intranasal swelling was noted. A course of oral penicillin therapy was prescribed. Four days later he was referred to our hospital for an otolaryngology consultation because of a marked increase in the nasal swelling.

The entire external portion of the nose was swollen and tender. A dusky red mass 2.5 cm in diameter and continuous with the nasal septum occluded both nasal airways. The cervical lymph nodes were enlarged bilaterally. The patient's oral temperature was 37.3°C.

A nasal septal abscess was diagnosed, then incised and drained under general anesthesia. The cartilaginous septum was found to be almost totally destroyed. A gauze drain

was placed in the abscess cavity and the nasal cavities were packed. The Gram-stained appearance of the purulent material obtained at the time of the operation was compatible with that of *Staphylococcus* infection, and *S. pyogenes* was subsequently cultured.

The patient was treated postoperatively with cloxacillin, 500 mg intravenously every 6 hours for 2 days, then 500 mg orally every 6 hours for 5 days, and then 250 mg orally every 6 hours for 7 more days. The intranasal packing was gradually removed, with the final portion taken out on the fourth postoperative day. Complete resolution occurred, but a minor saddle deformity of the nasal dorsum developed. The nasal airways have remained excellent in the 3 years since the operation. Surgical correction of the saddle deformity may be required later.

Case 2

A 13-year-old boy struck his nose while playing football. He was asymptomatic for the first week, but subsequently increasing nasal obstruction developed. External swelling of the nose became apparent approximately 2 weeks after the injury.

When the boy was seen at our hospital approximately 2½ weeks after the injury the nose was swollen and the skin about the nostrils was erythematous. A boggy red mass 2.5 cm in diameter replaced the anterior nasal septum and obstructed the nasal airways. The patient was afebrile.

A septal abscess secondary to a septal hematoma was diagnosed, then incised and drained under topical anesthesia. The nasal septal cartilage was almost totally destroyed. A gauze drain was placed in the abscess cavity and the nasal cavities were packed. The Gram-stained appearance of the purulent material obtained at the time of the operation suggested *Staphylococcus* infection, and subsequently *S. pyogenes* was cultured.

The patient was treated postoperatively with cloxacillin, 500 mg intravenously every 6 hours for 6 days, then 500 mg orally every 6 hours for

7 more days. The intranasal packing was gradually removed between the third and fifth postoperative days. Complete resolution occurred, but a mild saddle deformity of the nasal dorsum developed. The nasal airways have remained excellent in the 3½ years since the operation. Since the saddle deformity was more apparent because of a bony hump that the boy had, rhinoplasty was done when the boy was 16 years old, about 3 years after the injury and abscess formation.

Case 3

An 11-year-old boy was initially seen at our hospital because of nasal pain and obstruction 8 days after being struck on the nose by a bucket. At the time of injury there had been minor epistaxis. The oral temperature was 37.2°C. There was pronounced swelling of the nose, and a dusky red, boggy mass was replacing the anterior nasal septum (Fig. 1). The mass was symmetric bilaterally and obstructed the nasal airways completely.

A nasal septal abscess secondary to a septal hematoma was diagnosed, then incised and drained under general anesthesia. A portion of the anterior septal cartilage had been destroyed. A gauze drain was placed in the abscess cavity and the nasal cavities were packed. Gram-staining of the purulent material obtained at the time of the operation revealed gram-positive cocci, and *S. pneumoniae* was subsequently cultured.

The patient was treated postoperatively with ampicillin and cloxacillin, and then with just ampicillin. The intranasal packing was gradually removed, with the final portion taken out on the fourth postoperative day. Complete resolution occurred, but a very minor saddle deformity of the nasal dorsum developed (Fig. 2). The nasal airways have remained excellent in the 20 months since the operation.

Discussion

Since nasal septal abscesses most commonly develop from hematomas of the septum, there is usually a his-

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tory of nasal trauma. The patient complains of nasal obstruction, with throbbing, heat and tenderness.² Headache, malaise and fever are often present. The external portion of the nose is swollen, erythematous and tender. The anterior nasal cavities are occluded by a smooth, round, deep red or grey swelling.

As hematoma formation occurs in the nasal septum the perichondrium is lifted away from the cartilage. The cartilage is thus deprived of its blood supply and tends to be destroyed rapidly, often within 24 hours.⁶ Destruction of the quadrilateral cartilage may result in subsequent saddle deformity of the nasal dorsum. Other complications of nasal septal abscess are rare. They include meningitis,¹ septal perforation,¹ orbital cellulitis,⁵ cavernous sinus infection and thrombosis,⁵ and osteomyelitis of the cranial bones.⁵

Successful management of nasal septal abscess depends on immediate incision and drainage, as well as appropriate antibiotic therapy. Antibiotic therapy alone is not sufficient. The abscess can be drained at its most dependent point by a horizontal cut from behind forwards across the swollen area, as low as possible in the septum, so that subsequent loculation of pus is prevented.^{1,2} Bilateral drainage is only necessary if the abscess or hematoma has not resulted

in the destruction of cartilage and is bilateral, so that cartilage still exists between the collection of purulent material on both sides. Usually, however, the cartilage has been at least partially destroyed, leaving a common cavity, and only one incision is needed.⁷ It is sometimes advantageous to remove a piece of mucoperichondrium to facilitate drainage.² Any loose fragments of cartilage should be removed.^{1,2} A drain is placed in the incision, and the mucoperichondrium is replaced against the cartilage by supportive intranasal packing.⁷ Appropriate antibiotics should be given parenterally. The Gram-stained appearance of the purulent material obtained at the time of incision and drainage, and the culture results are very helpful in choosing the antibiotics. Until the organism is identified an antibiotic that will kill staphylococci, such as cloxacillin, should be given intravenously in fairly high doses.

Some authors have recommended the use of implants at the time of incision and drainage to prevent the saddle deformity. In 1952 Mills³ described the use of a cartilage graft in one such instance, and in 1957 Hansen⁸ reported good results from inserting polyethylene in one patient's nose. Jordan⁹ in 1967 described the use of autogenous septal bone and cartilage between the septal flaps at

the time of drainage of a septal hematoma. The same tissue was used in cases of septal abscess, but only after resolution of the infection. The preserved septal bone and cartilage was inserted through a septal hemitransfixion incision and over the upper lateral cartilages through an intercartilaginous incision to prevent scar retraction of the columella and upper lateral cartilage area. Donald⁶ recommended reconstruction as soon as possible after resolution of the infection. He suggested that a strip of the perpendicular plate of the ethmoid be inserted between the anterior septal membranes to prevent contractile collapse, or that a graft of irradiated cartilage be placed in a small tunnel created in the dorsum of the nose over the septum in the area where saddling is beginning, to provide support for the nasal dorsum before the scarring produces depression of the cartilaginous dorsum.

Conclusion

The treatment of nasal septal abscess or hematoma is incision and



FIG. 1—Case 3: preoperative view of nasal septal abscess.

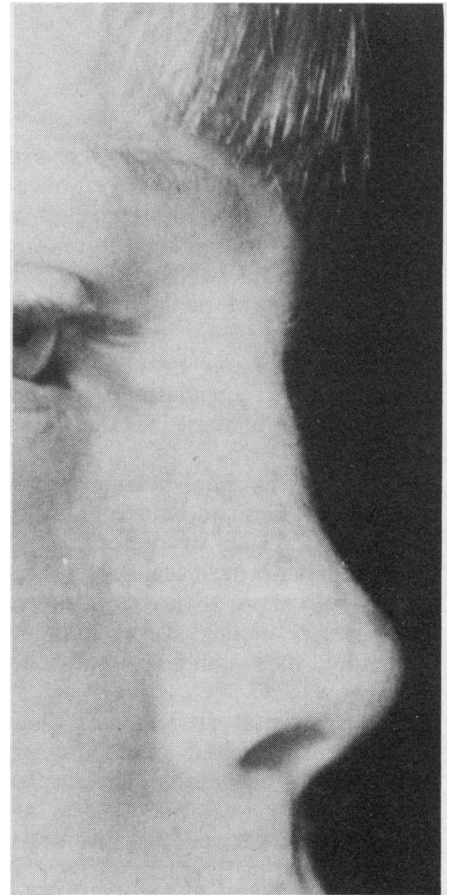


FIG. 2—Case 3: 2 months after incision and drainage of nasal septal abscess, very mild saddle deformity of dorsum.

drainage as soon as the diagnosis is made to prevent saddle deformity of the nasal dorsum. Unfortunately most patients with a septal abscess do not present for treatment until the nasal septal cartilage has been partially destroyed. The nasal dorsum may not collapse until after the abscess has been opened, and it is wise to warn the patient or the parents that deformity may follow in spite of operation. Some authors are recommending the insertion of a septal graft, either at the time of incision and drainage or shortly thereafter.

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continued from page 1314

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